Claims

We claim:

1. A method for fabricating a device, the method comprising:

providing a substantially planar substrate having opposed major surfaces, the substrate comprising a through hole extending between the major surfaces;

filling the through hole with a conductive interconnecting element; and

forming a conductive mounting pad and a conductive connecting pad on different ones of the major surfaces in electrical contact with the conductive interconnecting element.

2. The method of claim 1, in which the providing comprises forming the through hole in the substrate by one of punching and drilling.

3. The method of claim 1, in which the filling comprises filling the through hole with the conductive interconnecting element by at least one of pressing, metal deposition, screen printing and plating.

4. The method of claim 1, in which the forming comprises forming the conductive mounting pad and the conductive connecting pad by at least one of plating, cladding and screen printing.

5. The method of claim 1, in which the providing comprises:

providing the substrate of unfired ceramic; and

forming the through hole in the unfired ceramic.

6. The method of claim 5, in which the filling comprising filling the through hole in the unfired ceramic.

7. The method of claim 6, in which:

the forming comprises forming a seed layer on the unfired ceramic;

the method additionally comprises firing the ceramic; and

the forming additionally comprises forming additional layers on the seed layers after the firing.

8. The method of claim 7, in which:

the seed layer is formed by screen printing; and

the additional layers are formed by plating.

9. The method of claim 1, additionally comprising attaching a semiconductor die to the mounting pad.

10. The method of claim 9, additionally comprising:

providing a packaging device, the packaging device including a conductive mounting surface; and

mounting the device in the packaging device, the mounting comprising attaching the connecting pad to the conductive mounting surface of the packaging device.

11. The method of claim 9, in which:

providing a substrate comprises providing a wafer of which the substrate constitutes part; and

the method additionally comprises, after the filling, the forming and the attaching, singulating the wafer into individual devices.

12. The method of claim 1, in which:

in providing a substrate, the substrate additionally comprises an additional through hole;

the method additionally comprises filling the additional through hole with an additional conductive interconnecting element; and

the forming additionally comprises forming a conductive bonding pad and an additional conductive connecting pad on the different ones of the opposed surfaces of the substrate in electrical contact with the additional conductive interconnecting element.

13. method of claim 12, additionally comprising attaching a semiconductor die to the mounting pad.

14. The method of claim 13, additionally comprising connecting a bonding wire between the semiconductor die and the bonding pad.

15. The method of claim 14, in which:

providing a substrate comprises providing a wafer of which the substrate constitutes part; and

the method additionally comprises, after the filling, the forming and the attaching and the connecting, singulating the wafer into individual devices.

16. The method of claim 15, additionally comprising performing electrical testing prior to the singulating.

17. The method of claim 15, additionally comprising performing electro-optical testing prior to the singulating.

18. The method of claim 14, additionally comprising encapsulating the semiconductor die and at least a portion of the major surface of the substrate on which the mounting pad is located.

19. The method of claim 1, in which:

providing a substrate comprises providing a wafer of which the substrate constitutes part; and

the method additionally comprises, after the filling and the forming, singulating the wafer into individual devices.